This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims

1 (presently amended). A method of screening for the presence of a cancer cell, comprising:

a. obtaining a circulating epithelial tumor cell from a ~~biological~~ blood sample comprising a circulating epithelial tumor cell from a subject, wherein the sample is enriched for circulating epithelial cells by contacting the sample with an agent that binds with the epithelial cells, wherein the enrichment of the sample for circulating epithelial cells is achieved by cytokeratin screening;

b. contacting the circulating epithelial tumor cell with a probe capable of hybridizing to a nucleic acid of the cell, wherein the probe is associated with a specific cancer, thereby identifying the organ-origin of the cancer cell and wherein the probe is specific for a genetic marker and wherein the probe is associated with a chromogenic dye or a fluorescent dye; and

c. detecting the hybridization pattern of the probe, whereby the hybridization pattern can distinguish a non-cancer cell from a cancer cell whereby the hybridization pattern distinguishes a non-cancer cell from a cancer cell by detection of chromosomal aneuploidy specific for cancer, thereby screening for the presence of a cancer cell and wherein detection comprises spectral imaging or comprises utilizing multiple probes.

2 (cancelled). The method of claim 1, wherein the cell is a tumor cell.

3 (cancelled). The method of claim 1, wherein the cell is an epithelial cell.

4 (cancelled). The method of claim 1, wherein the cell is a circulating cell.

5 (cancelled). The method of claim 4, wherein the circulating cell is a circulating epithelial cell.

6 (cancelled). The method of claim 5, wherein the cell is from a sample enriched for circulating epithelial cells.

7 (cancelled). The method of claim 1, wherein the enrichment of the sample for circulating epithelial cells is achieved by cytokeratin screening.

8 (cancelled). The method of claim 1, wherein the probe is associated with a specific cancer, thereby identifying the organ-origin of the cancer cell.

9 (cancelled). The method of claim 1, wherein the probe is specific for a genetic marker.

10 (cancelled). The method of claim 1, wherein the probe is associated with a chromogenic dye.

11 (cancelled). The method of claim 1, wherein the probe is associated with a fluorescent dye.

12 (cancelled). The method of claim 1, wherein detection comprises spectral imaging.

13 (cancelled). The method of claim 1, wherein detection comprises utilizing multiple probes.

14 (presently amended). A method of screening for the presence of a cancer cell, comprising:

a. obtaining a ~~biological~~ blood sample from a subject, wherein the ~~biological~~ blood sample comprises a mixed cell population suspected of containing a population of circulating epithelial cells which include a cancer cell;

b. mixing the ~~biological~~ blood sample with magnetic particles coupled to a ligand which is capable of reacting specifically with epithelial cells to the substantial exclusion of non-epithelial cells;

c. enriching the ~~biological~~ blood sample for epithelial cells by subjecting the cells of step b to a magnetic field to produce a cell suspension that is enriched in epithelial cells;

d. contacting the cells of step c with a probe capable of hybridizing to nucleic acid of the cell wherein the probe is associated with a specific cancer, thereby identifying the organ-origin of the cancer cell and wherein the probe is specific for a genetic marker; and

e. detecting the hybridization pattern of the probe, whereby the hybridization pattern can distinguish a non-cancer cell from a cancer cell; thereby screening for the presence of a cancer cell.

15 (presently amended). A method of determining the status of a cancer comprising:

a. obtaining a ~~biological~~ blood sample containing a cell from a patient diagnosed with cancer;

b. enriching the sample for circulating epithelial cells by contacting the sample with an agent that binds with the epithelial cells;

c. contacting the cell in the enriched sample with a probe capable of hybridizing to nucleic acid of the cell wherein the probe is associated with a specific cancer, thereby identifying the organ-origin of the cancer cell and wherein the probe is specific for a genetic marker;

d. detecting the hybridization pattern of the probe, whereby the hybridization pattern can distinguish a non-cancer cell from a cancer cell;

e. determining the amount of cancer cells in the enriched sample and correlating the amount of cancer cells in the enriched sample with a stage of cancer, thereby determining the status of the cancer.

16 (presently amended). A method of determining the status of a cancer comprising:

a. obtaining a ~~biological~~ blood sample containing a cell from a patient diagnosed with cancer;

b. contacting the cell in the sample with a probe under conditions capable of forming a complex with an antigen of the cell;

c. detecting the complex, whereby detection of the complex can distinguish a non-cancer cell from a cancer cell;

d. determining the amount of cancer cells in the sample; and

e. correlating the amount of cancer cells in the sample with a stage of cancer, thereby determining the status of the cancer.

17 (presently amended). A method of determining the progression of a cancer comprising:

a. obtaining a ~~biological~~ blood sample containing a cell at a first time point from a patient diagnosed with cancer and obtaining a ~~biological~~ blood sample containing a cell from the patient at a second time point;

b. enriching the first and second samples for circulating epithelial cells by contacting the samples with an agent that binds with the epithelial cells;

c. contacting the cell in the first enriched sample and the cell in the second enriched sample with a probe capable of hybridizing to nucleic acid of the cell wherein the probe is associated with a specific cancer, thereby identifying the organ-origin of the cancer cell and wherein the probe is specific for a genetic marker;

d. detecting the hybridization pattern of the probe, whereby the hybridization pattern can distinguish a non-cancer cell from a cancer cell;

e. determining the amount of cancer cells in both the first enriched sample and the second enriched sample; and

f. comparing the amount of cancer cells in both the first enriched sample and the second enriched sample, whereby the relative amount of cancer cells in the first enriched sample as compared with the second enriched sample may be correlated with the progression of cancer, thereby determining the progression of the cancer.

18 (presently amended). A method of determining the progression of a cancer comprising:

a. obtaining a ~~biological~~ blood sample containing a cell at a first time point from a patient diagnosed with cancer and obtaining a ~~biological~~ blood sample containing a cell from the patient at a second time point;

b. contacting the cell in the first sample and the cell in the second sample with a probe under conditions which allow the probe to form a complex with an antigen of the cell;

c. detecting the complex in both the first sample and the second sample, whereby detection of the complex can distinguish a non-cancer cell from a cancer cell;

d. determining the amount of cancer cells in the first sample and the second sample; and

e. comparing the amount of cancer cells in both the first sample and the second sample, whereby the relative amount of cancer cells in the first sample as compared with the

second sample may be correlated with the progression of cancer, thereby determining the progression of the cancer.

19 (presently amended). A method of determining the effectiveness of an anti-cancer treatment comprising:

a. obtaining a ~~biological~~ blood sample containing a cell from a patient that has been administered an anti-cancer treatment;

b. enriching the sample for circulating epithelial cells by contacting the sample with an agent that binds with the epithelial cells;

c. contacting the cell in the enriched sample with a probe capable of hybridizing to nucleic acid of the cell wherein the probe is associated with a specific cancer, thereby identifying the organ-origin of the cancer cell and wherein the probe is specific for a genetic marker;

d. detecting the hybridization pattern of the probe, whereby the hybridization pattern can distinguish a non-cancer cell from a cancer cell;

e. determining the amount of cancer cells in the enriched sample and correlating the amount of cancer cells in the sample with the effectiveness of the anti-cancer treatment, thereby determining the determining the effectiveness of an anti-cancer treatment.

20 (presently amended). A method of determining the effectiveness of an anti-cancer treatment comprising:

a. obtaining a ~~biological~~ blood sample containing a cell from a patient that has been administered an anti-cancer treatment;

b. contacting the cell in the sample with a probe under conditions capable of forming a complex with an antigen of the cell wherein the probe is associated with a specific cancer, thereby identifying the organ-origin of the cancer cell and wherein the probe is specific for a genetic marker;

c. detecting the complex, whereby detecting the complex can distinguish a non-cancer cell from a cancer cell;

d. determining the amount of cancer cells in the sample and correlating the amount of cancer cells in the sample with the effectiveness of the anti-cancer treatment, thereby determining the determining the effectiveness of an anti-cancer treatment.

21 (withdrawn). A method for substantially simultaneously visualizing epithelial origin of a cell and the chromosome count of the cell comprising, in the following order:

a. obtaining a biological sample containing a cell from a patient;

b. performing immunocytochemistry on the sample to indicate epithelial origin;

c. analyzing the stained cell for chromosomal count.

22 (withdrawn). The method of claim 21 wherein performing immunochemistry on the sample to indicate epithelial origin is treating the sample with a labeled antibody against cytokeratin.

23 (withdrawn). The method of claim 21 wherein analyzing the stained cell for chromosomal count is performing FISH analysis on the sample.

24 (cancelled). The method of claim 1 wherein the biological sample is blood.

25 (cancelled). The method of claim 1 whereby the hybridization pattern distinguishes a non-cancer cell from a cancer cell by detection of chromosomal aneuploidy specific for cancer.

Kindly consider the new claim:

26 (new). A method for substantially simultaneously visualizing epithelial origin of a cell and the chromosome count of the cell comprising performing the steps of claim 1 wherein the detecting of the hybridization pattern of the probe includes counting the chromosomes identified by the probe.